

PACMAN GAME SOLUTION

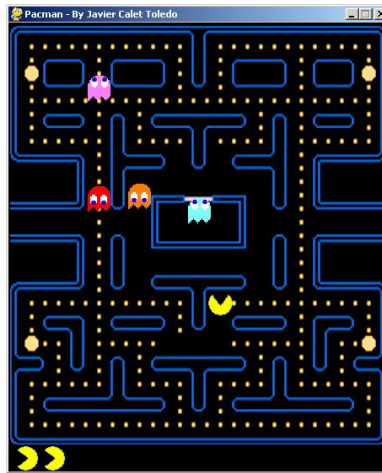
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In this test I wanted that the pacman game was as similar as the original one. I based the game on certain rules.

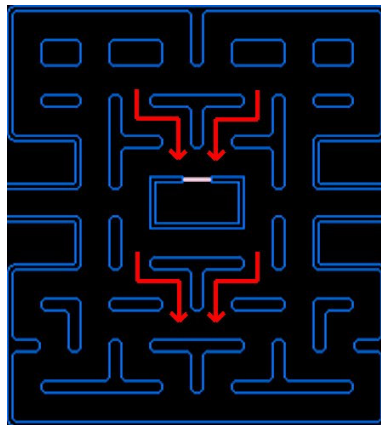
GAMEPLAY RULES

- Phantoms have two general states: way patrols and chase mode. In way patrol mode, the phantom patrols its maze part, and can change its position randomly. In Chase mode, the phantom goes after the player and each phantom has different behaviors. Phantoms will alternate these states randomly past certain time. In another state, the blue time state, the phantoms will try to go the opposite way where is the player.
- There are four types of AI in Chase Mode. One for each phantom colour or personality:
 - o BLINKY (red phantom): the most dangerous. It will track the player by his position in the maze, trying to get to where is the player as quickly as possible (A*). Blinky patrols the top-right hand corner of the maze.
 - o PINKY (pink phantom): the fastest but more predictable. Pinky will line up with the player by always following the direction which player is moving in or facing. Pinky patrols the top-left of the maze.
 - o CLYDE (orange phantom): slower and a lot less harmful. Clyde will try to go where is the player, selecting in each decision the shortest option: if player is at the left part of maze, he goes left, and if player is at the bottom part he goes down. Clyde patrols the bottom-left maze corner.
 - o INKY (blue phantom): the slowest and almost shy. It moves randomly without any sense. But, sometimes it can adopt the personality characteristics of any of the others at any given time. Inky patrols the bottom-right of the maze.
- The difficulty will be increased by each level: phantoms takes less time for exiting the house, are faster, can change its state in less time, and Inky can change personality more times, and the power pills change in duration.
- Phantoms are slower in tunnels and pacman is slower eating.
- Phantom eyes indicates the next direction that phantom will take before it turns into the next way.

- The hiding place: there is one safe spot in the maze. You can stay there safely for as long as you like. The ghosts will not find you:



- The escape routes: the two exits above the ghost house and above the Pacman start position can only be travelled downwards by the ghosts, never upwards.



CODE NOTES

- For patrols and blinky chase mode I have coded a A* path finding algorithm. Faster and always gets the shortest way from a source node to a destination node.
- The maze is divided in a node set. Each node has vicinity information and the distance between nodes, that it will use later as the cost in path finding.
- Actually, I make two text files for the Map information: one for collisions and maze gameplay configuration, and the second with the node information. The best had been a maze editor and create binary files, but this is far away of the exercise.